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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,560	12/05/2003	Philip J. Ellerbrock	038190/270520	4332

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EXAMINER	
DANG, KHANH	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/729,560	ELLERBROCK ET AL.	
	Examiner	Art Unit	
	Khanh Dang	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20031203*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 5, the phrase "said network device interface uses the timing determined from evaluation of messages transmitted by said bus controller in place of timing provided by said local oscillator to receive messages from said bus controller" is unclear because in the same claim, a local oscillator is recited as being "connected to said network device interface for providing a data rate to said network device interface for use in receiving messages from said bus controller."

With regard to claim 11, the phrase "wherein said using step uses the timing determined from evaluation of messages transmitted by the bus controller in place of timing provided by the local oscillator to receive messages from the bus controller" is unclear because in the same claim, a local oscillator is recited "for providing a data rate to said network device interface for use in receiving messages from the bus."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys et al. (Karolys).

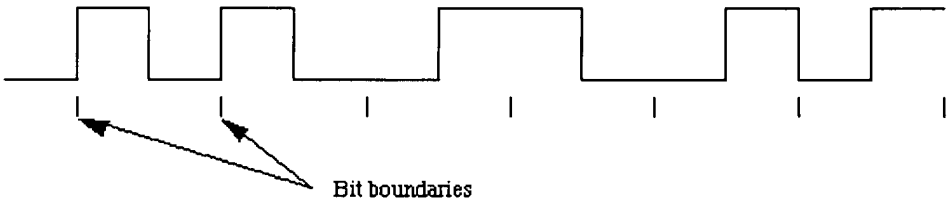
With regard to claims 1-3, 7-9, 13-15, 19-21, Karolys discloses a communication system (shown generally at Fig. 2) adapted to interconnect a bus controller (BCM 28 connected to a host 14) with an associated data channel (constituted by a sensor or transducer 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30) via a common digital bus (24), the communication system comprising: a bus controller (BCM 28 connected to a host 14) connected to the common digital bus (24) for communicating in an asynchronous mode with a data channel (constituted by a sensor or transducer 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30) across the common digital bus (24); and a network device interface (TBIM 26) connected between the common digital bus and (24) an associated data channel (constituted by a sensor or transducer 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30), wherein said network device interface (TBIM 26) transmits commands to and receives data from the associated data channel (constituted by a sensor or transducer 10, column 1, lines 50-61; column 3, lines 51-60; column 5, lines 22-30) based on commands from said bus controller (BCM 28 connected to a host 14). Karolys also disclose the use of NZR encoding for the messages communicated via bus (24.

Karolys does not disclose that the messages transmitted by the bus controller contain a plurality of bits having a value defined by a transition between first and second

states of the bits, wherein said network device interface evaluates the messages transmitted by said bus controller in order to determine a timing of the data sequence of the message and uses the determined timing to communicate with said bus controller.

However, such encoding technique is old and well-known in the art as Manchester encoding. Manchester encoding, long been considered as an alternative to NZR encoding, is a binary signaling mechanism that combines data and clock into "bit-symbols." Each bit-symbol is split into two halves with the second half containing the binary inverse of the first half; a transition always occurs in the middle of each bit-symbol

The following diagram shows a typical Manchester encoded signal with the corresponding binary representation of the data (1,1,0,1,0,0) being sent.



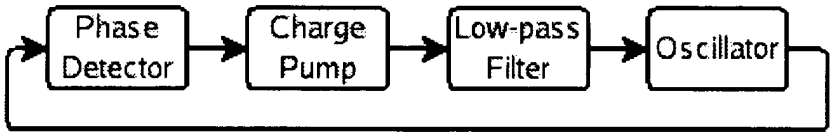
The waveform for a Manchester encoded bit stream carrying the sequence of bits 110100.

In the Manchester encoding shown, a logic 0 is indicated by a 0 to 1 transition at the center of the bit and a logic 1 is indicated by a 1 to 0 transition at the center of the bit. Note that signal transitions do not always occur at the 'bit boundaries' (the division between one bit and another), but that there is **always** a transition at the center of each bit. A Manchester encoded signal contains frequent level transitions which allow the

receiver to extract the clock signal and determine the timing. See also "Manchester Encoding," cited below as evidence of well-known prior art. Further evidence can be found in Hanna et al., Fig. 2, and description thereof, column 1, lines 22-23; column 1 line 35 to column 2, line 13. With regard to claims 4, 10, 16, and 22, it is clear that the messages transmitted by said bus controller contain a plurality of bits having a value defined by a transition between first and second states that occurs at the center of each bit. See above discussion regarding Manchester encoding.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Manchester encoding instead of NZR encoding in the communication system of Karolys, since the Examiner takes Official Notice that Manchester encoding, as explained above, is old and well-known in the art (as an alternative to NZR encoding); and using Manchester encoding instead of NZR encoding in Karolys only involves ordinary skill in the art for the purpose of providing a "number of advantages" over the NZR encoding (see "Manchester Encoding," cited below).
With regard to claims 5, 6, 11, 12, 17, 18, 23, and 24, in Manchester encoding, the clock/timing embedded in the data stream must be recovered using, for example, a phase locked loop (see "Manchester Encoding" and Hanna regarding oscillator) to decode the value and timing of each bit.

A typical Phase Locked Loop, shown below, must include an oscillator.



Thus, it is clear that the network device interface (TBIM) must use the timing determined from evaluation of messages transmitted by the bus controller in place of timing provided by the local oscillator, according to the principle of Manchester encoding. Note also that Applicants clearly state in the originally filed specification that "[i]t must be understood that for any device to receive asynchronous serial data, it must be able to acquire the timing of the data sequence from the serial data stream. Normally, the receiver of the serial asynchronous data must have a local oscillator to cause its receiver to operate, and recover the timing information from the serial data. Once the timing information has been extracted, the asynchronous receiver is able to receive serial data at certain rates, plus or minus a certain deviation from these rates, given this local oscillator frequency. Manchester encoding of serial data causes a transition from high to low or low to high in the center of every bit. This makes it easy to extract the necessary timing information from the serial data stream. Because it is so easy to extract the timing information from the Manchester encoded serial data stream, a relatively large deviation from the expected data rate, based on the local oscillator can be tolerated. This tolerance to relatively large deviations from the expected data rates

allows each NDI receiver to use a low accuracy local oscillator to receive the Manchester encoded data."

U.S. Patent Nos. 5,475,687 to Markkula, Jr. et al., 4,449,119 to Hanna et al., 6,574,515 to Kirkpatrick et al., 4,115,847 to Osder et al., and "Manchester Encoding" are cited as relevant art.

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 703-308-0211.

Khanh Dang
Primary Examiner